Roll No. | | | | | | |

Answer Sheet No._____

Sig. of Candidate._____

Sig. of Invigilator._____

BIOLOGY HSSC–I

SECTION – A (Marks 17)

Time allowed: 25 Minutes

NOTE:- **Section–A is compulsory and comprises pages 1–2. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.**

Q. 1 Circle the correct option i.e. A / B / C / D. Each part carries one mark.

(i) What is the number of naturally occurring chemical elements?

A. 32 B. 92

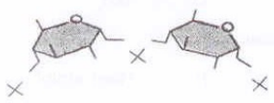
C. 150 D. 102

(ii) Which of the following can be defined as the group of living organisms of the same species located in the same place at the same time?

A. Species B. Community

C. Population D. Individuals

(iii) The diagram below shows part of a Polysaccharide chain. What type of bond is X?



A. $-\overset{\overset{O}{\|}}{C}-$ B. $-\overset{\overset{OH}{|}}{C}-$

C. $-O-$ D. None of these

(iv) The non-protein part is covalently bonded to protein part of enzyme is known as_____

A. Apoenzyme B. Holoenzyme

C. Prosthetic group D. Co-enzyme

(v) Which of the following cells secretes hydrochloric acid?

A. Mucous Cells B. Zymogen Cells

C. Epithelial Cells D. Oxyntic Cells

(vi) In which phylum has the sexual phase **NOT** been observed?

A. Ascomycota B. Deuteromycota

C. Basidiomycota D. Zygomycota

(vii) Extreme changes in pH cause the bonds in the enzyme to break, resulting in the enzyme_____

A. Denaturation B. Saturation

C. Competition D. Inhibition

(viii) Shark liver oil is extracted and used in medicine as a source of vitamin_____

A. B B. A

C. D D. A and D

DO NOT WRITE ANYTHING HERE

(ix) Which metal atom is present in chlorophyll?

A. Cu B. Fe

C. Mg D. K

(x) The role of Fungi in Mycorrhizae associations is to _____

A. Produce necessary nutrients B. Increase the absorptive surface of plant roots

C. Provide a substitute of plant leaves D. Increase the absorption of plant shoots

(xi) Which structure does the following diagram represent?

A. Chromosome B. Chromatid

C. Centrosome D. Centromere

(xii) How many Capsomeres are present in the capsid of Herpes virus?

A. 152 B. 160

C. 162 D. 161

(xiii) Which of the following is **NOT** globular protein?

A. Myosin B. Haemoglobin

C. Antibodies D. Hormones

(xiv) Cell wall is secreted by the _____

A. Nucleoplasm B. Protoplasm

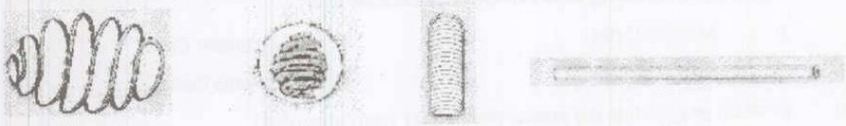
C. Centriole D. Glyoxisomes

(xv) Which is **NOT** true for bryophytes?

A. Dwelling gametophyte plant B. Presence of Xylem and Phloem

C. Sporophyte dependent in gametophyte D. All of these

(xvi) The figure below shows four different types of viruses. Which one is Influenza virus?



A B C D

(xvii) There is a rasping tongue-like structure in molluscs called _____

A. Radula B. Blastula

C. Gastrula D. Morula

For Examiner's use only:

Total Marks:	17
Marks Obtained:	

BIOLOGY HSSC–I

Time allowed: 2:35 Hours **Total Marks Sections B and C: 68**

NOTE:- Sections 'B' and 'C' comprise pages 1–2 and questions therein are to be answered on the separately provided answer book. Answer any fourteen parts from Section 'B' and attempt any two questions from Section 'C'. Use supplementary answer sheet i.e. Sheet–B if required. Write your answers neatly and legibly.

SECTION – B (Marks 42)

Q. 2 Attempt any FOURTEEN parts. The answer to each part should not exceed 3 to 4 lines. (14 x 3 = 42)

(i) Show how dipeptide is formed from two amino acids. **03**

(ii) a. What are amphibious plants? **02**

b. Why are the Sphenopsids also called Arthrophytes? **01**

(iii) Why is there no special transport system in Planaria? **03**

(iv) All vertebrates have closed circulatory system:

a. Identify the given diagram. **01**

b. State how you have identified it. **01**

c. Name the parts labelled A and B in the above figure. **01**

(v) Mitochondria manufacture and supply energy to the cell:

a. Write the chemical nature of Cristae. **01**

b. Where are the organic and inorganic salts present? **01**

c. From where do they extract energy? **01**

(vi) Write about the capsule of Adiantum. **03**

(vii) Write any three steps involved in the evolution of seed habit. **03**

(viii) a. Rubisco acts as two enzymes. Write down their names. How does it decide its way? **02**

b. What is biological nature of Rubisco and where is it found? **01**

(ix) Write the molecular formulae of Chlorophyll 'a' and 'b'. How do they differ from each other? **03**

(x) Why is the misuse of antibiotics dangerous? **03**

(xi) Closing and opening of stomatal pores affect the rate of transpiration:

a. How does K^+ ions help in the closing of stomata? **02**

b. Which hormone is released to stop the active transport of K^+ ions? **01**

(xii) Draw and label the diagram of the Discharged Nematocyst. **03**

(xiii) The cell wall is found both in bacteria and plant cell:

How is the cell-wall of Archaeo-bacteria different from Eubacteria? **03**

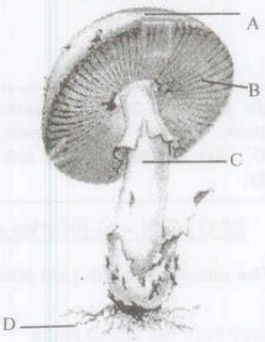
(xiv) a. How is the age of fossils calculated? **02**

b. Name the bird fossil which had bony teeth. **01**

(xv) a. Differentiate between Radial and Bilateral Symmetry. **02**

b. What is Syrinx? **01**

(xvi) Identify the diagram given below and name the parts labelled A, B, C and D: 1+2=3



(xvii) a. What is Cyanosis? 02

b. Define Chlorosis. 01

(xviii) How are bacteria used in genetic engineering? 03

(xix) Ancylostoma duodenale is parasite:

a. Why is it dangerous? 02

b. Name two diseases caused by it. 01

SECTION – C (Marks 26)

Note:- Attempt any TWO questions. All questions carry equal marks. (2 x 13 = 26)

Q. 3 **a.** What is Double Fertilization? Explain the life cycle of the plants in which double fertilization takes place. 10

b. What is the significance of alternation of generation? 03

Q. 4 **a.** Discuss the salient features of Phylum Porifera. 07

b. Differentiate between Protostomes and Deutrostomes. 06

Q. 5 Synthesis of sugar takes place in light independent reaction:
What is Calvin cycle? Explain Reduction and Regeneration of CO_2 acceptor. Also draw the diagram. 13

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BIOLOGY HSSC–I

SECTION – A (Marks 17)

Time allowed: 25 Minutes

NOTE:- **Section–A is compulsory and comprises pages 1–2. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.**

Q. 1 Circle the correct option i.e. A / B / C / D. Each part carries one mark.

(i) Which of the following is trace bioelement in human body?

A. Hydrogen B. Carbon

C. Oxygen D. Sulphur

(ii) About how many species of organisms are currently known to science?

A. 2,50,000 B. 2,500,000

C. 25000 D. 2,000,000

(iii) Which of the following is stored in animal body?

A. Glycogen B. Glucose

C. Cellulose D. Sucrose

(iv) The specificity of enzyme is due to its _____

A. Hydrogen bonding B. High molecular weight

C. Configuration D. pH sensitivity

(v) Which of the following statements about the nuclear envelope is **NOT** true?

A. It has pores B. It is a double membrane structure

C. Its inner membrane bears ribosomes D. RNA and some proteins pass through it

(vi) Which cell organelle lacks nucleic acid?

A. Chloroplast B. Mitochondria

C. Golgi apparatus D. None of these

(vii) Chlorophyll a, carotene and phycoerythrin are found in _____

A. Red Algae B. Green Algae

C. Diatoms D. Brown Algae

(viii) Antibiotics are the chemotherapeutic chemical substances which are synthesized and secreted by _____

A. Certain bacteria B. Certain Algae

C. Certain virus D. Both A and B

(ix) The empty bracts found at the base of spikelet wheat are called _____

A. Lodicules B. Lemnae

C. Glumes D. Rachilla

(x) What does **NOT** happen during inspiration in man?

A. Ribs move upward B. Diaphragm becomes more dome-shaped

C. Ribs move forward D. Outward and upward movement of ribs

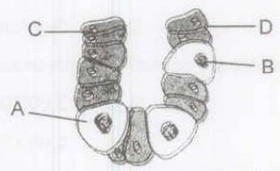
DO NOT WRITE ANYTHING HERE

(xi) What type of Transpiration takes place in Isobilateral leaves?

A. Lenticular B. Cuticular

C. Stomatal D. Both B and C

(xii) The diagram given below shows the detail of gastric gland in the stomach wall:



Circle the part of the above diagram concerned with the secretion of HCl?

(xiii) The main tracheal trunk in Cockroach communicates with exterior by _____

A. 100 spiracles B. 10 pairs of spiracles

C. 10 spiracles D. 100 pairs of spiracles

(xiv) The maximum amount of Oxygen which normal human blood absorbs and carries at the sea-level is about _____ of blood.

A. 20L/100ml B. 20ml/200ml

C. 200ml/100ml D. 20ml/100ml

(xv) When blood leaves the capillary bed, most of the CO_2 is in the form of _____ ions.

A. Hydroxyl B. Bicarbonate

C. Carbonate D. Hydrogen

(xvi) Which of the following is protective membrane of the human heart?

A. Epicardium B. Endocardium

C. Myocardium D. Pericardium

(xvii) The normal pH of human blood is _____

A. 4.7 B. 7.4

C. 7 D. 4

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Total Marks:	17
Marks Obtained:	

BIOLOGY HSSC–I

Time allowed: 2:35 Hours **Total Marks Sections B and C: 68**

NOTE:- Sections 'B' and 'C' comprise pages 1–2 and questions therein are to be answered on the separately provided answer book. Answer any fourteen parts from Section 'B' and any two questions from Section 'C'. Use supplementary answer sheet i.e. Sheet–B if required. Write your answers neatly and legibly.

SECTION – B (Marks 42)

Q. 2 Attempt any FOURTEEN parts. The answer to each part should not exceed 3 to 4 lines. (14 x 3 = 42)

(i) a. Differentiate between the Fresh water biology and Marine. **02**

b. Define Environmental biology. **01**

(ii) What is the use of hydroponic culture technique? How does it differ from tissue culture technique? **2+1=3**

(iii) The lipids are heterogenous group of compounds.

a. Why are Fats considered as high energy compounds? **01**

b. Draw the chemical structure of Phosphatidic acid. **01**

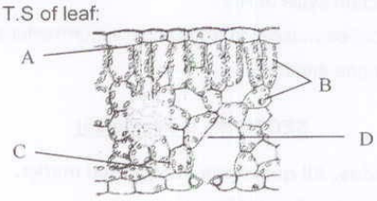
c. What will happen if the fat content is higher in food? **01**

(iv) Differentiate between Secondary and Tertiary structures. **03**

(v) Small intestine consist of three parts:

Name the parts in which nearly all absorption of products takes place. **03**

(vi) Diagram below shows T.S of leaf:



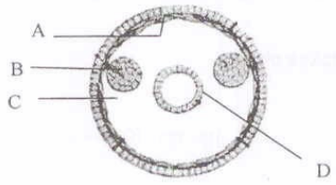
Which is the main site of carbon fixation? Also write the name of cells. **03**

(vii) Write the major function of Granulocyte and where they are formed. **03**

(viii) Parasite is an organism that lives on or within another organism:

Differentiate between Obligate and Facultative parasites. Give one example of ectoparasite. **03**

(ix) The diagram of Pseudocoelomate is given below:



a. Name the parts labelled A, B, C and D. **02**

b. What is meant by Pseudocolomate? **01**

(x) Filamentous appendages are present in bacteria which are smaller than flagella:

a. What are they called? **01**

b. What is their chemical nature? **01**

c. Write its function. **01**

(xi) What are the disadvantages of Water blooms? 03

(xii) Name the diseases caused by Fungi. 03

(xiii) Draw and label the female gametophyte of angiosperm. 03

(xiv) Compare Microtubule with Microfilament. 03

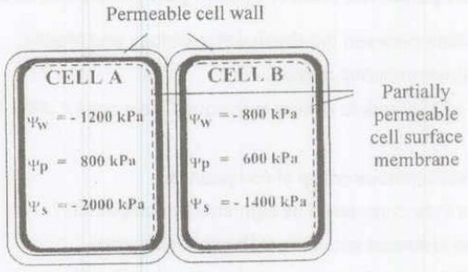
(xv) Lymphatic system consists of Lymph capillaries, Lymph vessels and Lymphoid masses:

a. Where are the Lacteals present? 01

b. How is the flow of Lymph maintained? 02

(xvi) What is the medicinal importance of family Caesalpiniaceae? 03

(xvii) The diagram below shows two adjacent vacuolated cells with ψ_w, ψ_p and ψ_s:



a. In which direction will water move by Osmosis? 01

b. What will be the water potential of the cells at equilibrium? 01

c. What will be the solute and pressure potential of cells at equilibrium? 01

(xviii) Draw and label the infection cycle of HIV. 03

(xix) Saracenia pupurea, Dionaea muscipula and Drosera intermedia are three modified plants. How do they differ from one another? 03

SECTION – C (Marks 26)

Note:- Attempt any TWO questions. All questions carry equal marks. (2 x 13 = 26)

Q. 3 **a.** Explain the general characteristics of Mammals. 11

b. State the sub-classes of mammals and give one example of each. 02

Q. 4 **a.** What is Photosystem? 01

b. How does this work? 03

c. Explain how the formation of ATP takes place during non-cyclic electron flow. 09

Q. 5 Explain how the evolution of leaf takes place. 13